

DESCRIPTION OF A NEW BLENNY FROM NEW JERSEY, WITH NOTES ON  
OTHER FISHES FROM THE MIDDLE ATLANTIC STATES.

BY HENRY W. FOWLER.

During 1912 and the past year, a number of local collections have been acquired by the Academy. Many afford new or interesting localities, which are grouped according to the several States. Though multitudes of the commoner species were examined at the fisheries, usually small collections and small specimens were obtained where possible.

## NEW JERSEY.

*Dasyatis say* (Le Sueur).

Examined a large one on the beach at Corson's Inlet, June 20, 1913. At this locality on June 19 saw *Fundulus heteroclitus macrolepidotus*, *Poronotus triacanthus*, *Cynoscion regalis*, *Chilomycterus schæpfi*, and *Lophius piscatorius*. On June 20 and 21, saw *Anguilla chrysypa*, *Fundulus heteroclitus macrolepidotus*, *Fistularia tabacaria*, *Hippocampus hudsonius*, *Cynoscion regalis*, *Bairdiella chrysura*, *Sciaenops ocellatus*, *Menticirrhus saxatilis*, *Pogonias cromis*, *Monacanthus hispidus*, and *Paralichthys dentatus*. The *Fistularia* was preserved, having been taken in the summer of 1912, and was about 15 inches long.

Several selachians have been reported to me on apparently trustworthy authority. They are:

*Alopias vulpes*.

One 16 feet long, taken in the pounds at Sea Isle City in May, 1900. T. Küpfer.

*Scoliodon terræ-novæ*.

One about 3 feet long, examined by Mr. W. J. Fox, was parasitized with numerous female copepods (*Pandarus sinuatus*), which were preserved. This shark was secured May 31, 1913, and the fishermen reported several more shortly afterward.

*Squatina squatina*.

One reported at Ocean City on December 31, 1912, and another in the same month at Stone Harbor, credited with being four feet long.

*Dorosoma cepedianum* (Le Sueur).

Dr. R. J. Phillips secured an adult at Corson's Inlet, October 16, 1913, taken in a mullet-net.

**Synodus foetens** (Linnæus).

One received from Dr. Phillips, taken in the summer of 1912, at Corson's Inlet, with *Atopichthys*, *Gasterosteus aculeatus*, and *Lagodon rhomboides*. Mr. D. McCadden secured an example at Ocean City on September 17, 1912.

**Felichthys marinus** (Mitchill).

An adult from Corson's Inlet, secured on August 19, 1912, by Mr. Fox.

**Tylosurus marinus** (Walbaum).

Many examples, about ten inches long, obtained by Mr. McCadden, on August 11, 1912, at Ocean City. August 30, 1913, at the same locality, he obtained a young *Prionotus evolans strigatus*, and found *Seriola zonata* abundant.

**Tylosurus raphidoma** (Ranzani).

Dr. Phillips secured a large example on August 15, 1913, taken in the pounds at Sea Isle City. Several other examples were also taken. The species appears to be frequent off our coast in the summer.

**Sphyræna borealis** De Kay.

A small one was secured in the bay at Corson's Inlet, on August 2, 1913, by Dr. Phillips.

**Trichiurus lepturus** Linnæus.

Mr. Fox reported one at Sea Isle City on July 5, 1912, and another on July 16, which last contained numerous small whitish eggs. A third example was taken in Great Egg Harbor Bay at Ocean City, July 30, 1913, and notice sent to me by Mr. W. B. Davis.

**Caranx hippos** (Linnæus).

A small example was obtained at Corson's Inlet on September 7, 1913, and another a little larger on September 8, by Dr. Phillips.

**Rachycentron canadus** (Linnæus).

Mr. Fox secured an example, 30 inches long, at Sea Isle City, on August 12, 1912.

**Orthopristis chrysopterus** (Linnæus).

Five small ones were caught at Corson's Inlet on September 20, 1913, and forwarded by Dr. Phillips. When caught, they grunted.

**Sciænops ocellatus** (Linnæus).

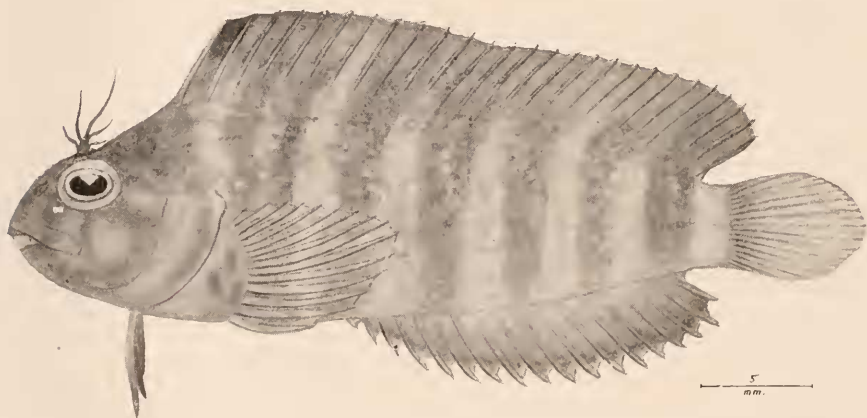
Dr. Phillips secured a small one at Corson's Inlet on September 8, 1913, and about the same time Mr. McCadden got a large one at Ocean City. Both these specimens were infested with lerneans.

*Blennius foxi* sp. nov.

Head  $3\frac{1}{3}$ ; depth  $3\frac{1}{2}$ ; D. XI, 15; A. 18; P. 14; V. i, 3; head width  $1\frac{3}{5}$  in its length; head depth at ventral origin  $1\frac{1}{8}$ ; snout  $3\frac{1}{5}$ ; eye  $3\frac{2}{5}$ ; maxillary  $2\frac{3}{5}$ ; interorbital space 2 in eye; first dorsal spine about  $1\frac{7}{8}$  in head; tenth dorsal ray about  $1\frac{4}{5}$ ; tenth anal ray about  $2\frac{1}{4}$ ; least depth of caudal peduncle  $2\frac{3}{4}$ ; caudal fin  $1\frac{3}{5}$ ; tenth pectoral ray  $1\frac{1}{3}$ ; ventral 2.

Body elongate, well compressed, contour elongately ellipsoid, with greatest depth at pectoral base. Caudal peduncle well compressed, short.

Head large, compressed, rather pointed, anterior upper profile moderately oblique, moderately convex sides slightly more wide below than above. Snout short, profile oblique, surface convex, slightly shorter than broad. Eye large, high, rounded, and anterior



in head, centre falling slightly behind first third in length of head. Pupil horizontally ellipsoid. Supraorbital cirrus large, its length about equals postorbital portion of head, and with two smaller filaments each side basally. Mouth moderate, terminal, and jaws about even, gape below upper basal edge of pectoral. Lips broad, fleshy. Maxillary large, slightly inclined, and nearly extending back opposite centre of eye. Teeth simple, close-set, and about 17 in each jaw. Also each jaw with a posterior canine on each side posteriorly (thus 4 in all), and the upper a little anterior to middle in length of maxillary as viewed laterally. Mandible strong, convex over surface, and rami not much elevated inside mouth. Tongue thick, fleshy, little free, and far back. Nostrils separated, though rather close, and near middle in length of snout. Interorbital narrowly concave.

Gill-openings entirely lateral, large, each about equal in length to combined snout and eye, and extend forward last third in length of head. Interior not examined.

Body scaleless, with smooth skin. Mucous system well developed on head, especially along preopercle ridge. L. l. system at first somewhat distinct, high, or close to back, and towards end of pectoral sloping down till midway along side, when obscure to caudal base.

Dorsals little differentiated, spines similar to simple rays, slightly more pungent, both rays and spines more or less uniform and covered with membrane, edge of fin entire. Dorsal origin little before hind edge of preopercle. Rayed dorsal well separated behind from caudal peduncle, and anal fin similar. Anal with edge notched, rays graduated down to shortest anteriorly, and fin inserted a little nearer snout tip than caudal base. Caudal moderately long, hind edge rounded. Pectoral large, graduated to ninth ray, which longest, and lower rays less graduated and thickened. Ventral inserted slightly before spinous dorsal origin, extends back slightly more than half way to anal. Vent close before anal.

Color when fresh largely various shades of neutral tint, with dorsal and anal slightly darker. Head marked with dark blotches of neutral tint, which somewhat obscurely defined, and radiate from eye. Trunks with seven vertical broad dark bands, wider or equal to the interspaces, and each with several whitish spots or blotches variously distributed within their boundaries. These dark vertical bands also reflected more or less on bases of dorsals. Iris brownish. Cirrus dusky. Dorsals deep neutral tint, without pale edge, and membrane between first two spines blackish. Anal with free tips of rays whitish and a submarginal deep neutral tint whole length of fin, base being paler. Caudal pale grayish. Pectoral livid gray, with several dark blotches before its base. Ventral pale along front edge, terminal portion behind dusky.

Length 38 mm.

Type, No. 39,440, A. N. S. P. Sea Isle City, Cape May County, New Jersey. September 5, 1913. Edward Nolan Fox.

Only the type known. It was secured in a little slough formed about the pilings of the pier, and left by the tides. The specimen was alive when found, swimming actively about, though it died shortly after its capture, when confined in a small vessel.

The species falls within the subgenus *Blennius* Linnæus. It is related to *Blennius fucorum* Valenciennes, though that species has a smaller and obtuse head, its orbital cirrus bifid at tip and fringed at

its base, more teeth (24 in each jaw), and a different coloration. It is said to be olivaceous, spotted with brown, and the spinous dorsal edged with paler. De Kay figures an example secured between New York and Constantinople, and it is therefore uncertain if he really obtained it in our limits.

*Blennioides stearnsi* Jordan and Gilbert also differs in the coloration, more slender body, longer maxillary, and more numerous teeth (24 to 26).

(Named for Master Edward Nolan Fox, who secured the type.)

***Urophycis regius*** (Walbaum).

Mr. McCadden secured one in Great Egg Harbor Bay, at Ocean City, on July 6, 1913, with *Bairdiella chrysura*, and a large prawn (*Peneus setiferus*). The *Bairdiella* was infested with a lernean parasite. On July 20, he found several more examples of *Urophycis*.

***Urophycis tenuis*** (Mitchill).

A small example in the Academy was obtained many years ago at Cape May. This is the first I have seen.

On May 26, 1912, I visited the Dutch Neck Fishery, between Florence and Burlington, on the Delaware River shores, and found *Abramis crysoleucas*, *Ameiurus nebulosus*, *Fundulus heteroclitus macrolepidotus*, *F. diaphanus*, and *Eupomotis gibbosus* abundant. On June 1, 1913, I found *Pomolobus pseudoharengus*, *Anguilla chrysa*, *Catostomus commersonnii*, *Abramis*, *Schilbeodes gyrynus*, *F. heteroclitus macrolepidotus*, *F. diaphanus*, *Apeltes quadracus*, *Eupomotis*, and *Boleosoma nigrum olmstedii*.

Mr. J. T. Nichols informs me he found an example of *Lobotes surinamensis* on September 20, 1913 at Galilee (Scabright), N. J. *Scomber colias*, *Pelamys alleterata*, and *Chatodipterus faber* were also noted at the same time. Another *Lobotes*, with a large example of *Fistularia tabacaria*, was also forwarded from Anglesea, N. J., October 21, 1913, through Mr. W. J. Fox.

PENNSYLVANIA.

Two large collections were received from Erie, one in April and the other in May, 1912. The specimens were collected in Lake Erie, at or near Erie, and forwarded at the direction of Mr. N. R. Buller, Fish Commissioner of Pennsylvania.

During the spring of 1912, and again in 1913, a great number of fishes were studied at Lovett's Fishery, situated at the mouth of Tullytown Creek on the Delaware River. A small spring-fed stream,

also flowing into the river close below this point, was thoroughly explored and yielded interesting material. Though unnamed, it is here referred to as "Tullytown Brook."

In June, 1912, I visited Mr. F. J. Meyers at Bethlehem, in Northampton County, and made a number of collections from the streams flowing into the Lehigh River in that vicinity. Mr. Meyers again invited me to join him in this region in late May of 1913, when we also made a few more collections. We then continued this excursion to Pocono Summit and explored various streams in Monroe County.

Mr. R. W. Wehrle sent several collections from Indiana and Huntingdon Counties.

In late July I spent a week in the lower Susquehanna region, around Peach Bottom, in York County, and with the assistance of Mr. H. L. Mather, Jr., secured several interesting collections.

Various other collections of lesser interest, though some quite extensive, have also been received during the past two years.

***Petromyzon marinus* Linnæus.**

A young bluish example, taken in the shad-net at Tullytown.

***Lampetra æpytera* (Abbott).**

Mr. Wehrle sent three small ones, though mature, from Hoffman's Run in Indiana County. He writes: "There were a lot of them sticking to stones in the riffles, and I think they were spawning. When scared down stream they remained quiet a while, but soon returned to stick to the same stones." Two others were also received from him, taken in Brick Pond. All taken in April, 1913.

***Acipenser sturio* Linnæus.**

Two at the Tullytown Fishery. One, four feet long, taken early in May, and the other taken May 28, a small example.

***Lepisosteus osseus huronensis* (Richardson).**

Erie.

***Amiatus calvus* (Linnæus).**

Five from Erie, one a female and others males. Stomachs nearly empty, one containing small *Perca flavescens*.

***Pomolobus pseudoharengus* (Wilson).**

Several hundred examined at Tullytown, from which about a dozen copepods (*Naobranchia pomolobi*) were taken. The parasites were all within the gill-openings. One adult female had a lernean, *Lerneoceropsis septemramosus*, attached to its side below dorsal fin.

*Pomolobus æstivalis* (Mitchill).

Many taken at Tullytown, and in several hauls almost all the fish were this species. A few copepods (*Naobranchia*) were also found in the gill-openings of some.

*Alosa sapidissima* (Wilson).

Over a hundred examined at Tullytown, though no crustacean parasites found on them.

*Leucichthys artedi* (Le Sueur.)

Erie.

*Salmo fario* Linnæus.

One from the Schuylkill River below Fairmount Dam, received from the Philadelphia Aquarium. Possibly it was washed out of the Wissahickon Creek, as suggested by Mr. W. E. Meehan.

*Salvelinus fontinalis* (Mitchill.)

Two from McMichael's Creek in Monroe County. Abundant in the Monocacy Creek above Bethlehem, and below in the Saucon Creek, also at Hellertown. In Monroe County at Tannersville, Pocono Creek, Tunkhanna Creek, Pocono Lake, and Snyderville. Mr. Wehrle sent an example from Laurel Run, in Huntingdon County, containing a cestode.

*Anguilla chrisypa* Rafinesque.

Tullytown Creek, Scott's Creek, Lovett's Fishery, Cash Ledge Bar, and Tullytown Brook, Bucks County. Also common in Muddy Creek, York County.

*Campostoma anomalum* (Rafinesque).

North Branch of Altman Creek, Yellow Creek, and Brick Pond, in Indiana County.

*Pimephales notatus* (Rafinesque).

Yellow Creek, North Branch of Altman Creek, Lucus Pond, and Brush Creek, in Indiana County. Abundant in the Susquehanna River at Peach Bottom, York County.

*Semotilus bullaris* (Rafinesque).

Tullytown Brook, Fallsington, and White's Island, Bucks County; Peach Bottom, York County.

*Semotilus atromaculatus* (Mitchill).

Hellertown, Northampton County; Tunkhanna Creek, Tobyhanna Creek, Pocono Lake, Snyderville, Monroe County; Laurel Run, Huntingdon County; North Branch of Altman Creek, Yellow Creek, Brick Pond, Lucus Pond, Brush Creek, Indiana County.

*Leuciscus elongatus* (Kirtland).

North Branch of Altman Creek, Brick Pond, Lucus Pond, Brush Creek, Indiana County.

*Abramis crysoleucas* (Mitchill).

Scott's Creek, Cash Ledge Bar, Tullytown Creek, Tullytown Brook, Fallsington, Queen Anne Creek, Bucks County; Darby Creek near Moore's, and Media, Delaware County. A good series of adults from Erie do not differ from our common eastern examples.

In a collection of fish-bones from a kingfisher's nest, taken May 20, 1913, at Bustleton, sent to me by Mr. R. F. Miller, I did not find the remains of this fish, as in a previous nest I reported. It contained only remains of *Notropis cornutus*, *Catostomus commersonnii*, and *Cambarus bartonii*. Of the first-named about 40 pharyngeal bones were examined.

*Notropis bifrenatus* (Cope).

Queen Anne Creek near Emilie, Tullytown Brook, Cash Ledge Bar, Fallsington, Bucks County; Hellertown, Lime Kiln Run, Saucon and Monocacy Creeks, Northampton County.

*Notropis proce* (Cope).

Susquehanna River at Peach Bottom, York County.

*Notropis hudsonius amarus* (Girard).

Queen Anne Creek near Emilie, White's Island, Bucks County; Schuylkill River below Fairmount Dam, Philadelphia County; Muddy Creek, York County.

*Notropis whippelii analostanus* (Girard).

Scott's Creek, Tullytown, Cash Ledge Bar, White's Island, Bucks County; Muddy Creek, and Peach Bottom, York County.

*Notropis cornutus* (Mitchill).

Robertson's Brook and Media, Delaware County; Monocacy and Saucon Creeks, Lime Kiln Run, Hellertown, Northampton County; Tunkhanna Creek, Tobyhanna Creek, Monroe County.

Muddy Creek, Sowego Creek, Peach Bottom, York County.

North Branch of Altman Creek, Yellow Creek, Lucus Pond, Brush Creek, Indiana County.

*Notropis chalybæus* (Cope).

Delaware River at Cash Ledge Bar, Bucks County.

*Notropis photogenis amœnus* (Abbott).

Schuylkill River below Fairmount Dam, Philadelphia County; Susquehanna River at Peach Bottom, York County.

*Ericymba buccata* Cope.

Yellow Creek, Indiana County.

*Rhinichthys atronasmus* (Mitchill).

Media and Robertson's Brook, Delaware County; White's Island, Bucks County; Lime Kiln Run, Hellertown and Saucon Creek, Northampton County; Pocono Creek, Tunkhanna Creek, Tobyhanna Creek, Pocono Lake, Snyderville, Monroe County.

Sowego Creek, York County; Laurel Run, Huntingdon County.

North Branch of Altman Creek, Lucus Pond, Brick Pond, and Brush Creek, Indiana County. Many from the last locality are greatly infested with protozoan parasites.

*Hybopsis kentuckiensis* (Rafinesque).

Sowego Creek and Susquehanna River at Peach Bottom. Muddy Creek, York County.

*Exoglossum maxillingua* (Le Sueur).

Muddy Creek and Sowego Creek, York County.

*Cyprinus carpio* Linnaeus.

Tullytown; Erie; Lucus Pond, Indiana County.

*Carpiodes thompsoni* Agassiz.

Erie.

*Catostomus commersonnii* Lacépède.

Robertson's Brook, Delaware County; Tullytown Creek, Fallington, Bucks County; Lime Kiln Run, Saucon and Monocacy Creeks, Northampton County; Peach Bottom, York County; North Branch of Altman Creek, Lucus Pond, and Brush Creek, Indiana County.

About a dozen examples were received from Erie, some of which are nearly two feet long. One of these was immediately noticed to be pale or whitish, besides being silvery tinted. When opened it contained a large cestode measuring 530 mm. in length. The parasite was submitted to Dr. J. P. Moore, who kindly informs me that it is the larval stage of *Dibothrium ligula* Donnadieu. He says it also occurs, in the larval form, in many birds, and in the mature stage, in fish-eating birds. The parasite was wound in several coils loosely through the liver and about the abdominal cavity. No distension of the abdomen, such as being swollen out, was noticed. No parasites were found in the other fishes.

*Catostomus nigricans* Le Sueur.

Peach Bottom, York County, North Branch of Altman Creek, Indiana County.

*Erimyzon sucetta oblongus* (Mitchill).

Tullytown Brook and Fallsington, Bucks County. Erie.

*Moxostoma breviceps* (Cope).

Erie.

*Moxostoma macrolepidotum* (Le Sueur).

Peach Bottom, York County.

*Ameiurus natalis* (Le Sueur).

Erie.

*Ameiurus nebulosus* (Le Sueur).

Media, Delaware County; Schuylkill River below Fairmount Dam, Philadelphia County; Tullytown, Scott's Creek, Cash Ledge Bar, and Tullytown Brook, Bucks County; Dry Land Pond, Northampton County; Brick Pond, and Lucas Pond, Indiana County.

*Ameiurus melas* Rafinesque.

Erie.

*Schilbeodes gyrinus* (Mitchill).

An interesting example about eight inches long was taken in a fyke-net, at Torresdale, in the Delaware River. It was very pale, or a case of albinism, the general tint being dilute saffron. Mr. J. R. Berkhouse secured it and sent it to the Philadelphia Aquarium, where I saw it alive.

One adult from Lime Kiln Run, Lehigh County.

*Esox americanus* (Gmelin).

Media, Delaware County; Schuylkill River below Fairmount Dam, Philadelphia County; Scott's Creek, Tullytown Brook, Fallsington, and one from Tullytown Creek at Tullytown on May 26, 1913, with large round worm in viscera, Bucks County; Saucon and Monocacy Creeks, Northampton County; Tobyhanna Creek, and Pocono Lake, Monroe County.

*Esox reticulatus* Le Sueur.

Erie.

*Umbra pygmæa* (De Kay).

Tullytown Brook, Bucks County.

*Fundulus heteroclitus macrolepidotus* (Walbaum).

Darby Creek near Moore's, Delaware County; Scott's Creek, Tullytown Brook, Cash Ledge Bar, Bucks County.

*Fundulus diaphanus* Le Sueur.

Media, Darby Creek near Moore's, Delaware County; Tullytown Creek, Tullytown Brook, Scott's Creek, Cash Ledge Bar, White's

Island, Bucks County; Monocacy and Saucon Creeks, Northampton County.

*Tylosurus marinus* (Walbaum).

Susquehanna River at Peach Bottom, York County.

*Apeltes quadracus* (Mitchill).

Monocacy and Saucon Creeks, Northampton County.

*Pomoxis annularis* Rafinesque.

Schuylkill River below Fairmount Dam, Philadelphia.

*Pomoxis sparoides* (Lacépède).

Erie; Delaware River at Tullytown, Bucks County.

*Ambloplites rupestris* (Rafinesque).

Lucus Pond, Indiana County. Also examples from Erie.

*Enneacanthus gloriosus* (Holbrook).

Tullytown Brook, Bucks County.

*Lepomis auritus* (Linnæus).

Media, Delaware County; Tullytown Brook, Cash Ledge Bar, and White's Island, Bucks County; Muddy Creek, York County.

*Lepomis incisor* (Valenciennes).

Erie.

*Eupomotis gibbosus* (Linnæus).

Media, Delaware County; Tullytown, Tullytown Brook, Queen Anne Creek near Emilie, Fallsington, Cash Ledge Bar, Bucks County; Monocacy Creek, Northampton County; Saylor's Lake, Monroe County. Muddy Creek and Peach Bottom, York County. Erie.

Several small specimens from a mine-pond, near Bethlehem, taken in September, 1913, and received from Mr. F. Bureaw, were greatly parasitized with protozoa.

*Micropterus dolomieu* Lacépède.

Tullytown, Bucks County; Addingham, Delaware County; Yellow Creek, Indiana County.

*Micropterus salmoides* (Lacépède).

Erie.

*Stizostedion vitreum* (Mitchill).

Erie.

*Perca flavescens* (Mitchill).

Tullytown and Cash Ledge Bar, Bucks County. Erie.

*Boleosoma nigrum* (Rafinesque).

North Branch of Altman Creek, Yellow Creek, and Brick Pond, Indiana County.

*Boleosoma nigrum olmstedii* (Storer).

Tullytown Brook, Scott's Creek, and White's Island, Bucks County; Hellertown, Monocacy and Saucon Creeks, Northampton County; Snyderville, Tobyhanna Creek, Pocono Lake, Monroe County.

Peach Bottom, York County; Laurel Run, Huntingdon County.

*Etheostoma flabellare* Rafinesque.

North Branch of Altman Creek and Brick Pond, Indiana County.

*Roccus lineatus* (Bloch).

Tullytown.

*Roccus chrysops* (Rafinesque).

Erie.

*Morone americana* (Gmelin).

Tullytown and Cash Ledge Bar, Bucks County.

*Aplodinotus grunniens* Rafinesque.

Erie.

*Cottus ictalops* (Rafinesque).

Yellow Creek and Brick Pond, Indiana County.

*Cottus gracilis* Heckel.

Monocacy and Saucon Creeks, and Lime Kiln Run, Northampton County.

#### DELAWARE.

The following list pertains largely to a visit I made, with Mr. C. J. Pennock, to Mr. A. D. Poole, at Rehoboth, in late April, 1913. Mr. Poole assisted me in every way to make my stay profitable as possible. On my return to Philadelphia several days were also spent at Lewes. At Rehoboth I visited the off-shore pounds, and thus had opportunity of seeing many interesting species. Several species are new additions to the State fauna.

*Mustelus canis* (Mitchill).

Rehoboth and Lewes beaches. Common.

*Raja erinacea* Mitchill.

Lewes beach. Few.

*Raja ocellata* Mitchill.

Rehoboth and Lewes beaches. Common.

*Raja eglanteria* Lacépède.

Rehoboth and Lewes beaches. The most abundant species.

*Raja lævis* Mitchill.

Few large ones in the off-shore pound at Rehoboth.

**Acipenser sturio** Linnaeus.

Two large ones in the Rehoboth pound. The larger measured  $104\frac{1}{2}$  inches in length, and yielded about 50 pounds of caviare.

**Lepisosteus osseus** (Linnaeus).

May 8, 1913, Mr. Poole informs me "large ones were very abundant in the dam at Greens Mills, which is near Bridgeville. The stream is the northwest fork of the Nanticoke."

**Pomolobus mediocris** (Mitchill).

Small ones at Rehoboth and Lewes.

**Pomolobus pseudoharengus** (Wilson).

Very abundant at Rehoboth and Lewes.

**Alosa sapidissima** (Wilson).

Saw a few, possibly a dozen each day, at Rehoboth. Few at Lewes.

**Brevoortia tyrannus** (Latrobe).

Very common at Rehoboth. Among the multitudes examined but one had *Olencira prægustator* in its mouth, besides being parasitized by *Lernæenicus radiatus*. The latter was common on almost every fish. Few at Lewes.

**Anchovia mitchilli** (Valenciennes).

Large schools seen in the pound at Rehoboth. Very common along the bay-shore at Lewes.

**Anguilla chrisypa** Rafinesque.

Young in multitudes, in Lewes Creek and the canal at Rehoboth. Common at Lewes.

**Abramis crysoleucas** (Mitchill).

A few in Lewes Creek at Rehoboth.

**Ameiurus nebulosus** (Le Sueur).

Common in Lewes Creek and many young in the ponds, lake, and canal at Rehoboth. Few at Lewes.

**Esox reticulatus** Le Sueur.

Several small ones in Lewes Creek at Rehoboth and Lewes.

**Umbra pygmæa** (De Kay).

Abundant in Lewes Creek, at Rehoboth and Lewes.

**Fundulus majalis** (Walbaum).

Common on the bay-shore at Lewes and about Cape Henlopen.

**Fundulus heteroclitus macrolepidotus** (Walbaum).

Common with the last. At Rehoboth it was common in the canal, though less so in the lake, and very abundant in Lewes Creek.

**Fundulus diaphanus** (Le Sueur).

About Rehoboth common in the fresh-water glades, and some half-grown males in full breeding-dress. At Lewes a few were found in the tidal reaches of Lewes Creek, though it was more common in the glades, where I found few or none of the preceding species.

**Lucania parva** (Baird).

Several in the canal at Rehoboth.

**Menidia beryllina cerea** Kendall.

Few in the canal at Rehoboth, with the last.

**Menidia menidia notata** (Mitchill).

Shoals seen in the pound at Rehoboth. Also common on the bay-shore at Lewes.

**Hippocampus hudsonius** De Kay.

Rehoboth beach.

**Gasterosteus aculeatus** Linnæus.

One taken in the lake, which virtually is head of Lewes Creek, at Rehoboth.

**Poronotus triacanthus** (Peck).

Common at Rehoboth and Lewes beaches.

**Enneacanthus gloriosus** (Holbrook).

Common in the glades of Lewes Creek at Rehoboth and Lewes.

**Eupomotis gibbosus** (Linnæus).

In the lake at Rehoboth.

**Orthopristis chrysopterus** (Linnæus).

Several in Rehoboth pound.

**Stenotomus chrysops** (Linnæus).

Few large ones in Rehoboth pound.

**Cynoscion regalis** (Schneider).

Very abundant at Rehoboth and Lewes.

**Micropogon undulatus** (Linnæus).

Common at Lewes and Rehoboth. With the last, the most abundant food-fish.

**Menticirrhus saxatilis** (Schneider).

Few at Lewes and Rehoboth.

**Pogonias cromis** (Linnæus).

Several large ones in the Rehoboth pound.

*Tautoga onitis* (Linnæus).

Lewes.

*Spheroides maculatus* (Schneider).

Common in the Rehoboth pound.

*Prionotus evolans strigatus* (Cuvier).

Abundant at Rehoboth and Lewes.

*Lophopsetta maculata* (Mitchill).

Few at Rehoboth.

*Paralichthys dentatus* (Linnæus).

Common, some large, at Rehoboth and Lewes.

*Urophycis regius* (Walbaum).

Adult and several small ones at Rehoboth.

*Lophius piscatorius* Linnæus.

Rehoboth and Lewes.

#### MARYLAND.

In late April of 1912, I made several collections in the Choptank and its tributaries about Denton, in Caroline County. A small collection was made in the Pocomoke River near Willards, in Wicomico County, in May of the same year. Rather extensive series of fresh-water fishes were also secured in the streams of Harford County, mostly from Deer Creek, at and near the Rocks, and in the Gunpowder River, in August, 1912.

*Lepisosteus osseus* (Linnæus).

I examined one of nine examples, from the Passerdyke Creek, at Eden, Wicomico River basin in Somerset County, May 2, 1913.

*Pomolobus pseudoharengus* (Wilson).

Choptank River and Gary's Branch, near Denton.

*Alosa sapidissima* (Wilson).

Choptank River at Cedar Island and Denton.

*Anguilla chrisypa* Rafinesque.

Deer Creek near Sharon, and common at the Rocks.

*Semotilus atromaculatus* (Mitchill).

Sharon and the Rocks.

*Leuciscus vandoisulus* Valenciennes.

The Rocks, and Laurel Brook, a tributary of the Gunpowder River.

**Abramis crysoleucas** (Mitchill).

Gary's Branch and Choptank River near Denton. Aydelotte Branch and Pocomoke River near Willards.

**Notropis hudsonius amarus** (Girard).!

Gary's Branch and Choptank River near Denton.

**Notropis whipplii analostanus** (Girard).

The Rocks.

**Notropis cornutus** (Mitchill).

Sharon, the Rocks, and Clermont Mills.

**Notropis chalybæus** (Cope).

Abundant in the Pocomoke River and Aydelotte Branch near Willards, associated with *Abramis* and *Palemonetes vulgaris*.

**Rhinichthys atronasus** (Mitchill).

The Rocks, Clermont Mills, and Laurel Brook.

**Hybopsis kentuckiensis** (Rafinesque).

The Rocks, Sharon, Clermont Mills, and Laurel Brook.

**Exoglossum maxillingua** (Le Sueur).

Same as last species.

**Catostomus commersonnii** (Lacépède).

The Rocks, and Sharon.

**Catostomus nigricans** Le Sueur.

Clermont Mills.

**Ameiurus catus** (Linnæus).

Choptank River near Denton.

**Ameiurus nebulosus** (Le Sueur).

Gary's Branch, and Choptank River near Denton. Pocomoke River at Willards.

**Schilbeodes insignis** (Richardson).

The Rocks.

**Esox americanus** (Gmelin).

Aydelotte Branch near Willards.

**Esox reticulatus** Le Sueur.

Gary's Branch, and Choptank River near Denton. Pocomoke River, and Aydelotte Branch near Willards.

**Umbra pygmæa** (De Kay).

Aydelotte Branch near Willards.

**Fundulus diaphanus** (Le Sueur).

Choptank River, and Cedar Island near Denton.

**Lepomis auritus** (Linnæus).

The Rocks, Sharon, and Clermont Mills.

**Eupomotis gibbosus** (Linnæus).

Gary's Branch, and Choptank River near Denton. Pocomoke River near Willards.

**Perca flavescens** (Mitchill).

Gary's Branch, and Choptank River near Denton.

**Boleosoma nigrum olmstedii** (Storer).

Choptank River at Cedar Island and near Denton.

**Morone americana** (Gmelin).

Gary's Branch, Choptank River, and Cedar Island near Denton.